Part of a Letter written in Latin to Thomas Gale, S. T. D. Secret. Reg. Soc. *from* Carniolà, *by Mr.* John Weichard Valvaſor liber Baro; *containing the Method of caſting Statues in Metal; together with an Invention of his for making ſuch caſt Statues of an extraordinary thinneſs, beyond any thing hitherto known or practiſed.*

I Send you likewiſe my Method of caſting Statues in Metal, in obedience to the Commands of the Royal Society; it is as follows. *Firſt*, I form out of good Clay, that will endure the Fire, and not crack either in drying or burning, ſuch a Figure or Statue as I deſire to caſt; when this is well dry, I make, all over the Figure, little holes of no great depth (but both ſize and depth proportionate to the bigneſs of the Statue) into which I let ſmall pieces of Metal, and with ſome of the ſame Clay fix them firmly in the holes; the uſe of theſe bitts of Metal, marked in Figure. I. *a, a, a, a, a,* is to keep the *Core* and *Mould* from touching one the other, or falling together when the Wax runs out; and that they may remain conſtantly in the ſame fixt Poſture. This done, I ſcrape away with ſome proper Inſtrument as much of the Clay in thickneſs as I deſign for the thickneſs of my Statue, and then laying it in a Furnace, I burn the *Core* till it be red-hot. (by the *Core* I mean always the Statue firſt made in Clay.) When it is cold I rub the *Core* all over with that ſort of Earth or colour, which our *German* Potters uſe, to colour the joynts of the Tiles when they ſett Stoves of Tiles or (*Kachel-Ofens* ;) This Colour reſembles much that which the French call *Plomb de mer* (*Black Lead*) which is uſed to deſign on Paper, and eaſily wipes out with Bread, but it is not the ſame: this colour I mix with Water, and daub all over the *Core*, becauſe the Metal is found to run freely upon it. There are other Subſtances proper for this purpoſe, but I have always made uſe of this, eſpecially for thin Statues. This done, I lay on upon the *Core* as much yellow Wax mixed with Pitch or Roſin as will make the thickneſs of the intended Statue, which I form in the Wax with all the exactneſs poſſible.

Here note, that the Particles of Metal mentioned to be ſet into the *Core*, to keep it at a diſtance from the *Mold* muſt be ſo ſet as to fall in with the ſurface of the Wax exactly: and that the reaſon of mixing Pitch or Roſin with the Wax is, becauſe that when it is burnt out, it makes a great ſmoak, and that ſmoak adhering to the *Mold* occaſions the Metal to run more freely: as I have experienced it. Next I put all over upon the ſurface of this Statue of Wax, little pieces of Wax which I call the little chanels; in the Figure marked *c. c. c. c. c. c.* (all which muſt be contrived ſo as to enter into the great Chanels *d. d. d.*) This done, I cover the *Core* and wax all over with the ſame ſort of Clay, that will endure the Fire without cracking; and ſo I have my Concave Statue or Mould made. Upon this I lay the great Chanels marked *d. d. d. d.* both upright and tranſverſe, formed likewiſe in Wax, and placed according to Judgment, ſo as beſt to receive the ends of the little Chanels *c. c. c. c. c.* for the more eaſie diſtribution of the Metal. Theſe great Chanels muſt all meet at the top of the Statue, ſo as to come out by one hole, as at *E*, where the Metal is to be poured in; it is alſo neceſſary to have a Chanel or two to let out the Air as the Metal enters, as thoſe marked *f. f:* and there muſt be a hole or two left at the foot, as *g. g*, where the great Chanels and waxen Statue joyn; and whereat, when the Mould is burnt, the wax as well of the Statue as of the Chanels may run out. The great Chauels being thus placed, the Mould muſt be again laid over with the ſame ſort of Clay. (I uſe conſtantly to bind about the Mould with Iron Wire and then lay on more Clay) and when this Mould is well drie, then I heat it red hot; as I did before the Core, ſo now both together.

The firſt time I practiced this method, I burnt both Core and Mould together, and all the ſmall bitts of Metal melted, ſo that, though it chanced to ſucceed well, yet I was in great danger of miſcarriage; and ever ſince I burn the Core firſt, that ſo there may not need ſo ſtrong a fire to burn the *Mould*: but for ſmall manageable Statues of not above a foot or two high, they may be both burnt together, and there is no need of the holes *g. g*, but the *Mould* may be inverted, and the Wax run out by the Chanels *f. f.* and *E.*

The *Mould* being thus burnt, I ſtop with the ſame Clay the two holes *g. g.* and then I bury it in a pit, and proceed as is uſual in caſting of Bells and the like, but care muſt be taken that the Metal be very well in fuſion.

If it be a ſmall Statue not above a foot or two high, whoſe *Mould* may be managed in ones hands; then I make me a concave Statue of Wax, of the thickneſs I deſire, and then place upon it all thoſe great and leſſer Chanels, as afore: which done I put it all togather, into a liquid ſubſtance made of Plaiſter and Tile or Brick duſt tempred with water; but I doubt not but the way of caſting in Plaiſter is well known in *London*, and therefore ſhall not need to write it.

If the Statue be intended very thin, then I take Copper, and when it is well in fuſion, I mix with it a good quantity of *Zinc*, without obſerving any certain proportion of weight; the more *Zinc* the better the Metal runs. I have ſometimes for ſmall and thin Statues put in above a third part of *Zinc*. now *Zinc* is a certain Mineral Subſtance like *Marcaſite* or *Biſmuth*, in French *du Zinc*; without it our work would not ſucceed if it be very thin, and

I have found by experience that this Mineral makes the Metal run moſt freely, and gives it a fair golden Coulour.

The Statue being caſt, I take off the *Mould* and cut off all the little Chanels; all which both great and ſmall are filled with Metal, which may be kept for further uſe: In theſe there is much more Metal than in the whole Statue; for if the Statue be very thin, there muſt be more and bigger Channels; and ſo the cheaper the the Statue the more weighty the Chanels and the more Metal remaining.

To know the quantity of Metal requiſite for my intended work, I take a lump of the ſame mixture of Wax and Pitch, with which I make the *Mould* of my Statue; and having weighed it, I make a *Mould* upon it, and caſt in the ſame a lump of Metle of the ſame ſize; which I weigh and thereby compute the proportion of the weight of the Mettle and Wax; then obſerving how many pounds of Wax I uſe about the Figure and Chanels, I can calculate to a ſmall matter how much Metal I need to melt.

This is my manner of caſting ſtatues very thin, and which alwais ſucceeded happily with me. Hitherto I have caſt no ſtatue above nine foot high, but I doubt not but I could, by the ſame methods, caſt one of any bigneſs deſired. And when we ſhall be more at eaſe from our ill neighbour the *Turk*, I will caſt at one fuſion the Statue of our Emperour *Leopold*. I. ſetting on Horsback, much greater than the life; I have been already in treaty about the charges thereof with the States of this Country; and if theſe *Turkiſh* troubles had not come upon us, it had been now finiſhed. &c.

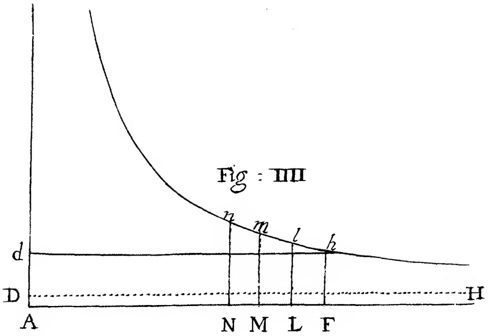


Fig : IIII

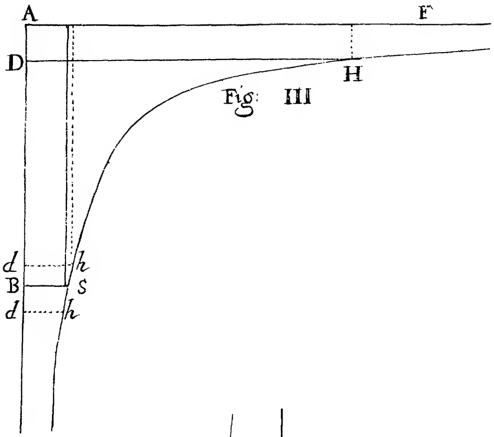


Fig: III

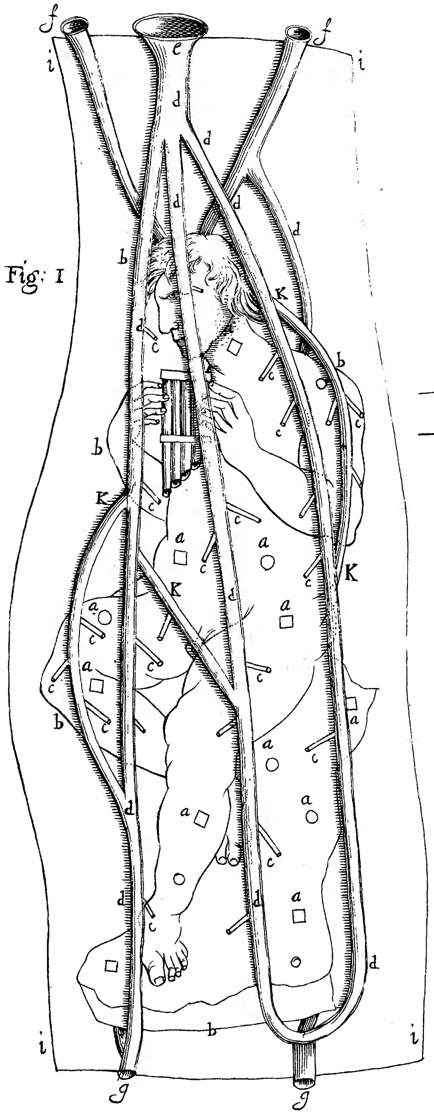
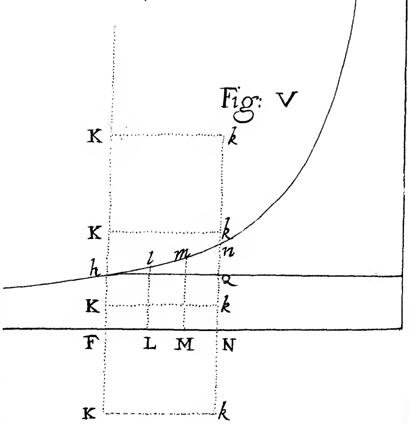


Fig: I



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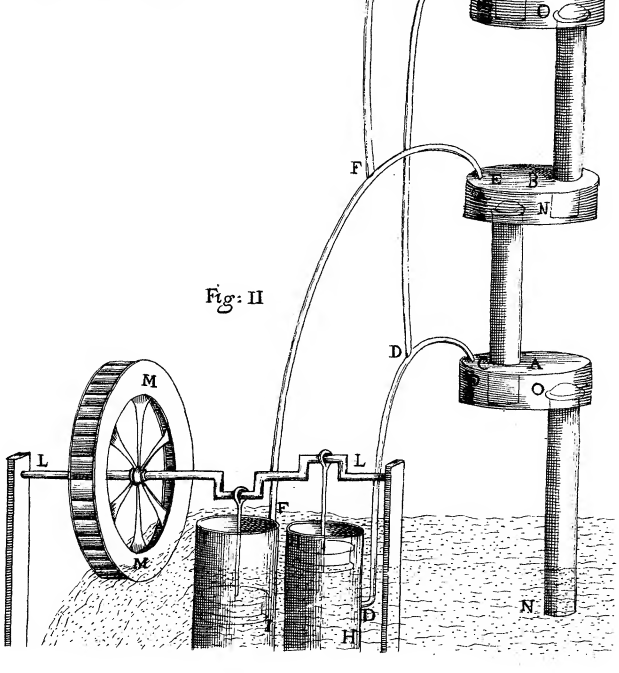

Fig: II